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Lightest Isotope of Bh Produced Via the $^{209}\text{Bi}(^{52}\text{Cr},n)^{260}\text{Bh}$ Reaction

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Abstract

The lightest isotope of Bh known was produced in the new $^{209}\text{Bi}(^{52}\text{Cr},n)^{260}\text{Bh}$ reaction at the Lawrence Berkeley National Laboratory's 88-Inch Cyclotron. Positive identification was made by observation of eight correlated alpha particle decay chains in the focal plane detector of the Berkeley Gas-Filled Separator. ^{260}Bh decays with a 35^{+19}_{-9} ms half-life by alpha particle emission mainly by a group at 10.16 MeV. The measured cross section of 59^{+29}_{-20} pb is compared to "Fusion by Diffusion" model predictions proposed by Świątecki, Siwek-Wilczyńska, and Wilczyński. [1,2] The influence of the N = 152 and Z = 108 shells on alpha decay properties will be discussed.

[1] W. J. Świątecki, K. Siwek-Wilczyńska, and J. Wilczyński, *Acta Physica Polonica B* **34**, 2049 (2003).

[2] W. J. Świątecki, K. Siwek-Wilczyńska, and J. Wilczyński, *Physical Review C* **71**, 014602 (2005).

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